METHOD, APPARATUS, AND COMPUTER PROGRAM PRODUCT FOR SAFE EXIT MANEUVER FROM DIMENSIONALLY EXTENDED ROTATING SPACE VEHICLE

ABSTRACT OF THE DISCLOSURE

There is provided methods, apparatus, and computer program products for implementing a KINSTLER maneuver for an exit vehicle that is departing from a rotating space vehicle such that the exit vehicle does not contact the space vehicle during departure. A composite spin axis of the space vehicle is determined, which defines a plurality of spin axis planes that contain the exit vehicle along the exit flight path. The spin rate of the rotating space vehicle is determined about the composite spin axis, and the exit vehicle is launched from the space vehicle, providing the exit vehicle with a departure velocity having a V_S component. Lateral thrust is applied to provide a lateral acceleration, which provides a turn rate of the exit vehicle's V_S component in the spin axis plane about the composite spin axis that is proportionate to the spin rate of the rotating space vehicle.